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STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

TTP 3121 – TCP/IP PROGRAMMING

(All sections / Groups)

23 October 2017
9.00 am – 11.00 am
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 printed pages (including cover page) with 5 questions only.
2. Attempt only **ALL Questions**. All Questions carry equal marks (10 marks). The distribution of the marks for each question is given.
3. Please print all your answers in the answer booklet provided.

QUESTION 1 [2+2+3+3 marks]

- (a) List the usage of Simple Network Management Protocol (SNMP).
- (b) List TWO manifestations of network congestion.
- (c) List the command to
 - i. Create a symbolic link between 2 paths
 - ii. rename folder *myFolder* to *yourFolder*Note: Use [] to represent a space
- (d) List the output for the program below.

```
main() {  
    int childpid;  
  
    childpid=fork();  
  
    if (childpid!=0){  
        printf("\n|EEE"); sleep(5);  
        printf("\n|ACM"); exit(0); }  
    else {  
        sleep(1); printf("\n|ET");  
        exit(0); }  
}
```

QUESTION 2 [2+3+3+2 marks]

- (a) Describe meaning of
 - i. 0
 - ii. 55which is the value returned by *int read()* system call.
- (b) List THREE control operations on a semaphore.
- (c) Describe *int shutdown(int sockfd, int how)*.
- (d) List any TWO incompatibility problems that may faced by RPC.

QUESTION 3 [2+2+2+4 marks]

- (a) What will be the new file permissions of *myfile* after the execution of the command " *chmod 0731 myfile* " ?

Continued.....

- (b) Identify the meaning in the code below.

```
sigset_t set1;  
.  
.  
sigfillset(&set1);  
sigprocmask ( SIG_SETMASK, &set1, NULL);
```

- (c) Identify the usage of **IPC_RMID** and **IPC_STAT** for message queue.
- (d) Identify the argument differences for
- execlp()* and *execv()*
 - execv()* and *execvp()*

QUESTION 4 [5+3+2 marks]

- (a) Compose a program to read an input file called "input.dat" (create the file if it does not exist) and display the last five characters of the file to screen. File permission should be set to read and write for owner only.
[Note: Use only system calls to complete this task]
- (b) Compose a short program that removes a message queue by using *int msgctl(int msqid , int cmd , struct msqid_ds *buff)* system call. Your program must also show the creation of IPC key for message queue by using *key_t ftok(const char *pathname, int id)* system call.
- (c) Compose a short program to ignore the signal, when *Ctrl + C* is pressed.

QUESTION 5 [5+3+2marks]

- (a) Compose a TCP server program that receives message from a TCP client program. With the message received, remove all the vowels and then the processed message is sent back to client. For example, message *Hello World, Hll Wrld* will be sent back to client. Your TCP server program should print the IP address of the connected client. Header file (*inet.h*) is provided as in Figure 1.
[Note: Use only system calls to complete this task]

Continued.....

```
/*inet.h*/
#include<stdio.h>
#include <stdlib.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<netinet/in.h>
#include<arpa/inet.h>
#define SERV_TCP_PORT 25000
#define SERV_UDP_PORT 35001
#define CLI_UDP_PORT 35002
```

Figure 1

- (b) Compose short code to demonstrate the unlock operation in semaphore.
- (c) Explain the outcome following codes
- i) if (FD_ISSET (STDIN, &readfds));
 - ii) FD_ZERO(&readfds);

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